

Book Review

Tadpoles and Frogs of Australia.

Marion Anstis. 2013. Pp. 831. New Holland, Sydney, ISBN 9781921517310, \$125.

(\$145 for the limited edition, ISBN 9781921517167, signed, individually numbered.)

What might a South African dentist and an Australian music teacher have in common? A love of frogs. The book that inspired and sustained me and many another budding South African herpetologist was dentist Walter Rose's (1950) *The Reptiles and Amphibians of Southern Africa*, a modest octavo volume illustrated with the author's own line drawings and somewhat muddy black-and-white photographs. Particularly noteworthy is Chapter 39, titled *Advice to the inexperienced on catching and handling poisonous snakes, together with full instructions for keeping them in captivity*, whose content is: DON'T.

Marion Anstis' book is memorable for quite other reasons: I am confident that no better account of a regional frog fauna has ever been published. In part, certainly, this reflects the development of the printer's, illustrator's and photographer's arts over the intervening decades: this is a large and magnificent book. But in greater part it is a product of the energy, the dedication, the skills and the meticulous standards of a retired music teacher with a life-long fondness for tadpoles. Enrichment through the contributions of "gifted amateurs" seems to be a hallmark of Australian herpetology; Anstis exemplifies that tradition in truly spectacular fashion.

As she notes, a number of Australian frogs are awaiting formal description; at the time of publication 241 species were recognised. For 26 species (nearly all of which have restricted and/or remote distributions) the book includes information only on adults and geographic range. Its outstanding accomplishment, however, is to provide life history information, typically in meticulous detail, for all the remaining species. No wonder it's an enormous book, weighing in at a little under 4 kg! It certainly isn't the kind of field guide that you pop into your day-pack along with your camera and binoculars; on the other hand it's the book that every serious froggo would want to have close at hand when in the field.

If you think about it, the massive size of the book should come as no great surprise. The average vertebrate field guide gets by very well with text plus an illustration or two and a distribution map for each species. This is not so for frogs, especially in the hands of such a perfectionist as Anstis. In the field you're liable to encounter eggs, newly-hatched larvae, older tadpoles, metamorphlings and adult frogs; and there's little or nothing about the immature stages that tells you what sort of adult frog they will give rise to. Tadpoles, moreover, have few definitive easy-to-count or easy-to-measure characteristics; good illustrations are an essential aid to identifying them. But not all tadpole features show up well in photographs: high-quality drawings are another necessity.

Anstis developed her own techniques for drawing and photographing tadpoles; and from her own resources and those of colleagues she also assembled a comprehensive gallery of excellent photographs, not only of frogs and tadpoles, but also of egg masses and some habitats. (And I do mean comprehensive: there are more than 3000 photos, as well as the line drawings and distribution maps.) As an example, for my personal favourite, the Giant Banjo Frog *Limnodynastes interioris*, there are three colour photos of adults, one of an egg mass, one of newly-hatched larvae, seven of tadpoles at various stages, and one of a metamorphling, as well as drawings of a tadpole and its mouth disc (an important diagnostic feature) and a distribution map.

Just under three-quarters of the book is occupied by the species accounts; the remainder is divided among general frog information, conservation concerns, methods of study and husbandry, and identifying features of developmental stages and adults. There is also a well-illustrated version of the standard "staging system" which divides the sequence of development into Stages from 1 (fertilised egg) to 46 (newly-metamorphosed frog). To avoid excessive repetition of descriptions, Anstis divides tadpoles into 23 defined types, larval mouth discs into 20. The species accounts refer to the types, which are well described and illustrated in a preliminary section; so my friend the Banjo Frog, for instance, has a Type 9 tadpole with a Type 8 mouth disc.

The other major (and to my mind, heroic) component of the book is a series of keys to aid in identification of tadpoles and eggs (but not adults). There is an initial key to genera of tadpoles, and then, in the species accounts, keys to eggs and tadpoles of the species within each genus. Keys (as anyone who has tried to devise one knows) are devilishly difficult things to construct. Anstis' keys rely to a significant extent on knowing where the specimen came from, because there simply isn't enough indicative variation in eggs and tadpoles to permit reliance on their intrinsic features alone. (Of course, as any museum curator will tell you, a specimen without locality data is a fairly useless article anyway.)

As I think is almost inevitable in such a large and lavish work, there are a few imperfections. The distribution map for *Mixophyes fasciolatus*, for instance, appears a second time in the guise of a map for *M. fleayi*. The useful idea of providing state frog fauna checklists is undermined by inaccuracy (there are at least five species missing from the Victorian list, including [sob!] the Giant Banjo Frog). And I suppose a grouch could

complain that there are verbal descriptions of frog calls, but no analyses or sonagrams. I don't see this as a serious lack, however (and their addition would certainly make the book even bigger).

I've been told that mediaeval embroiderers deliberately included small mistakes in their work, on the grounds that only God could be perfect and they shouldn't set themselves up as trying to match God. Those small errors do nothing to erode the splendour of their creations, and so it is with this book. It's an absolutely stunning volume; it sets a new world standard in what a frog book should be; it becomes and will endure as a classic among Australian fauna books. I applaud

the individuals and institutions who supported Anstis through the years of hard work that the book required, but most of all I stand in awe of the music teacher by training, but scientist by instinct, who undertook, researched, wrote, illustrated and to a large extent designed this superb gift to Australian natural history.

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